

ABSTRACT

The invention relates to an actuation system and method for an implantable infusion pump. In an example, a working fluid is placed in an actuator. Upon actuation, the working fluid is driven into a piston cylinder. Upon deactuation, the actuator draws the fluid from the cylinder through a restrictor at a rate dictated by the motivating force, fluid viscosity, and restriction. Driving of the piston may produce a bolus dosage or fill a supplemental flow chamber for subsequent delivery. The exemplary system may be configured by selecting a fluid volume and a viscosity. These, in combination, produce a prescribed fluid delivery rate (or recharge rate) and cumulative flow volume provided to a patient over a time period or in a bolus dose. The system may also be configured to limit the total dosage of a bolus injection, or the rate of a supplemental dosage. In this manner, the system is safe, preventing overdose.